WHAT IS CLAIMED IS:

1. A lithographic projection apparatus comprising:

an illumination system for providing a beam of radiation used to irradiate a patterning device;

a first support that supports the patterning device, the patterning device capable of patterning the beam of radiation;

a second support that supports a substrate;

a projection system for projecting the patterned beam of radiation onto a target portion of the substrate; and

a projection system positioning module that controls at least one of a position and an orientation of the projection system based on at least one of a velocity and an acceleration of the projection system.

2. The apparatus according to claim 1, further comprising sensors for measuring at least one of the velocity and the acceleration of the projection system, and for outputting sensing signals indicative thereof, wherein said sensors use an inertia principle.

3. The apparatus according to claim 2, wherein said sensors for measuring said velocity of said projection system comprise a geophone.

4. The apparatus according to claim 2, wherein said projection system positioning module comprises:

interfaces for adjusting at least one of said position and said orientation of said projection system in response to a drive control signal; and

a controller responsive to said sensing signals for generating said drive control signal so as to correct for said at least one of said velocity and said acceleration of said projection system.

5. The apparatus according to claim 4, further comprising a base frame, wherein said projection system is mounted on said base frame with said interfaces.

6. The apparatus according to claim 2, wherein said projection system is mounted in 6 degrees of freedom.

7. The apparatus according to claim 6, wherein said sensors are arranged to determine at least one of said velocity and said acceleration of said projection system in 6 degrees of freedom.

8. The apparatus according to claim 6, wherein said interfaces are arranged to adjust at least one of said position and said orientation of said projection system in 6 degrees of freedom.

9. The apparatus according to claim 4, wherein said interfaces comprise Lorentz actuators to function as spring-damper combinations.

10. The apparatus according to claim 4, wherein said interfaces comprise static springs to function as gravity compensators.

11. The apparatus according to claim 1, further comprising a support positioning module, wherein said support positioning module comprises:

support sensors arranged to determine at least one of a position and an orientation of at least one of said first and said second supports, and to output support sensing signals indicative thereof;

support drivers arranged to adjust at least one of said position and said orientation of at least one of said first and said second support, in response to a support drive signal;

a controller responsive to said support sensing signals for generating said support drive signal so as to correct for at least one of said position and said orientation of at least one of said first and said second support.

12. The apparatus according to claim 11, wherein said support sensors are arranged to determine at least one of a position and an orientation of at least one of said first and said second support, relative to said projection system.

13. A lithographic projection apparatus comprising:

an illumination system for providing a beam of radiation used to irradiate a patterning device;

a first support that supports the patterning device, the patterning device capable of patterning the beam of radiation;

a second support that supports a substrate;

a projection system for projecting the patterned beam of radiation onto a target portion of the substrate; and

a projection system positioning module that controls at least one of a position and an orientation of the projection system during projection of the patterned beam of radiation onto the target portion of the substrate.

14. A device manufacturing method, comprising:

providing a beam of radiation;

patterning the beam of radiation;

projecting the patterned beam of radiation onto a target portion of a layer of radiation-sensitive material;

measuring at least one of a velocity and an acceleration of said projection system; and

positioning said projection system by controlling at least one of a position and an orientation of said projection system, based on at least one of said velocity and said acceleration.

15. The method according to claim 14, further comprising:

determining at least one of a position and an orientation of at least one of a first and second support relative to said projection system; and

adjusting at least one of said position and said orientation of at least one of said first and said second support, so that changes in at least one of said position and said orientation of at least one of said first and said second support relative to said projection system are minimized.